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ABSTRACT

A study was conducted to investigate the relationship between educational attainment in psychology and diagnostic competence with the Diagnostic and Statistical Manual of Mental Disorders (DSM) II and III systems. Five subject groups served to define the variable of educational attainment in psychology: (1) 33 introductory undergraduate psychology students; (2) 29 advanced undergraduate psychology students; (3) 30 first year graduate psychology students; (4) 28 fourth year graduate psychology students; and (5) 30 licensed doctoral level psychologists. The licensed psychologists were also compared to a group of 29 unlicensed master's level psychologists to determine the relationship between advanced training in psychology and diagnostic accuracy. Subjects based their diagnoses upon a videotape of seven diagnostic interviews. A significant relationship was found between educational attainment in psychology and both DSM-II accuracy ($p<.001$) and DSM-III accuracy ($p<.001$). A linear relationship was also found between educational attainment in psychology and diagnostic reliability with the DSM-II and DSM-III systems. When licensed psychologists were compared to master's level psychologists, licensed psychologists exhibited significantly greater accuracy in identifying the DSM-II condition of "manic depressive illness, manic." Licensed psychologists also obtained a higher level of reliability on the DSM-II and DSM-III than did master's level psychologists. These results support the validity of educational attainment in psychology as a licensing criterion. (Author/NB)

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Diagnostic Accuracy and Reliability as a Function of Educational Attainment in Psychology

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Running head: EDUCATIONAL ATTAINMENT IN PSYCHOLOGY

Abstract

The present study investigated the relationship between educational attainment in psychology and diagnostic competence with the DSM-II and DSM-III systems. Five subject groups served to define the variable of educational attainment in psychology (a) 33 introductory undergraduate psychology students (b) 29 advanced undergraduate psychology students (c) 30 first year graduate psychology students (d) 28 fourth year graduate psychology students, and (e) 30 licensed doctoral level psychologists. The licensed psychologists were also compared to a group of 29 unlicensed master's level psychologists to determine the relationship between advanced training in psychology and diagnostic accuracy. Subjects based their diagnoses upon a videotape of seven diagnostic interviews.

A significant relationship was found between educational attainment in psychology and both DSM-II accuracy $p<.001$ and DSM-III accuracy $p<.001$. A linear relationship was also found between educational attainment in psychology and diagnostic reliability with the DSM-II and DSM-III systems.

When licensed psychologists were compared to master's level psychologists, licensed psychologists exhibited significantly greater accuracy in identifying the DSM-II condition of "manic depressive illness, manic" $p<.05$. Licensed psychologists also obtained a higher level of reliability on the DSM-II and DSM-III than master's level psychologists.

These results provide evidence for the validity of one important licensing criterion, educational attainment in psychology. Evidence of this type can be useful to legislators who are asked to consider proposals to discontinue psychology licensing legislation in their states.

Educational Attainment in Psychology and

Diagnostic Accuracy

In 1979 Daniel Hogan published a book entitled The Regulation of Psychotherapists in which he argued that "the most desirable regulatory model is a system of registration in which all practitioners are required to register with the state but are not required to possess any particular credentials to practice." (Hogan, 1979, p. 4). Given the current popularity of governmental deregulation Hogan's report has received wide notice in the popular press, as well as in professional publications. Increasingly, psychologists have been called upon to respond to Hogan's allegations when issues involving certification and licensure are being considered by state legislatures (Theaman, 1982).

While discussing psychology licensing laws Hogan (1979) has written:

> ...there is no evidence that licensing requirements measure significant factors. The emphasis on educational degrees, for instance, assumes that such degrees are a valid and reliable measure of competence (p. 255)...
>
> ...academic grades, licensing examinations, intelligence tests, and aptitude tests have not been shown to have any correlation with the skills needed to practice therapy or any other professional endeavor effectively (p. 268).

The purpose of the present study was to evaluate the relationship between educational attainment in psychology and diagnostic competence. Subjects ranging in psychological training from the beginning undergraduate level to the licensed doctoral level were evaluated with respect to their ability to make DSM-II and DSM-III diagnoses of patients. Subjects made their diagnoses after observing a videotape of seven diagnostic interviews.

Research studies have yielded differing estimates of the relationship between educational attainment in psychology and diagnostic competence. Several studies have indicated that many persons possessing little or no formal psychology training possess good observational skill and are able to achieve a high level of reliability in ranking patients along a continuum of abnormality (Hunt, Jones, & Hunt, 1957; Hunt & Jones, 1958a, 1958b). Laymen also perform well in rating the symptoms of patients when these symptoms are written in lay terminology (Helzer, Robins, Croughan, & Welner, 1981).

Laymen have more difficulty in recognizing the diagnostic terms corresponding to specific patterns of symptoms. Hunt and Walker (1962) conducted a study in which subjects diagnosed patients based upon their written responses to the Comprehension subtest of the WAIS. Subjects attempted to identify the test protocols of six schizophrenic patients, six psychoneurotic patients, six cases of organic brain damage, six cases of mental retardation, and six normal controls. The results indicated that

both graduate and undergraduate training in psychology was associated with a higher level of accuracy in identifying these mental disorders.

In a related study, Gardner and Harrison (1967) required 6 PhD level clinical psychologists and 10 graduate psychology students to diagnose a patient using a 20 category diagnostic system. Responses to the sentence completion test served as the experimental stimulus in this study. These results indicated that advanced training in psychology is significantly related to diagnostic accuracy.

Subjects in the above studies may have been handicapped by the fact that they were not allowed to actually see the patients they were diagnosing. Research studies investigating the types of information which most influence diagnostic decisions have revealed that information about the patient's mental state at the time of the evaluation tends to be the major determiner of a psychiatrists' diagnosis of that patient (Gauron & Dickinson, 1966). Studies have also revealed that diagnosticians can make accurate diagnoses after observing only five minutes of videotaped patient interviews (Sandifer, Hodern, & Green, 1970; Kendell, 1973).

In the present study, five groups of subjects were selected to represent the variable of educational attainment in psychology. These five groups were (1) introductory undergraduate psychology students, (2) advanced undergraduate psychology students, (3) first year graduate psychology students,

(4) fourth year graduate psychology students, and (5) licensed doctoral level psychologists. An additional subject group composed of master's level psychologists was included to assess the impact of doctoral versus master's level training upon diagnostic competence.

It was hypothesized that the accuracy and reliability of both DSM-II and DSM-III would increase as a function of educational attainment in psychology. The hypothesis was tested for statistical significance through the use of a linear analysis of trend. In comparing master's level psychologists and licensed psychologists it was expected that licensed psychologists would obtain significantly greater accuracy and reliability in their DSM-II diagnoses and DSM-III diagnoses than master's level psychologists.

Method

Subjects

Six different groups of subjects participated in this study: 30 licensed psychologists, 29 master's level psychologists, 28 fourth year graduate students, 30 first year graduate students, 29 advanced undergraduate psychology students and 33 introductory undergraduate psychology students.

The doctoral and master's level psychologists were recruited from various schools, hospitals, developmental centers, and rehabilitation facilities throughout Long Island. The diagnostic exercise was described to potential subjects as a valuable training experience for persons interested in learning more about

the DSM-II and DSM-III. Graduate and undergraduate psychology students were given points toward a class grade for their participation in this study while some participated on a voluntary basis.

Procedure

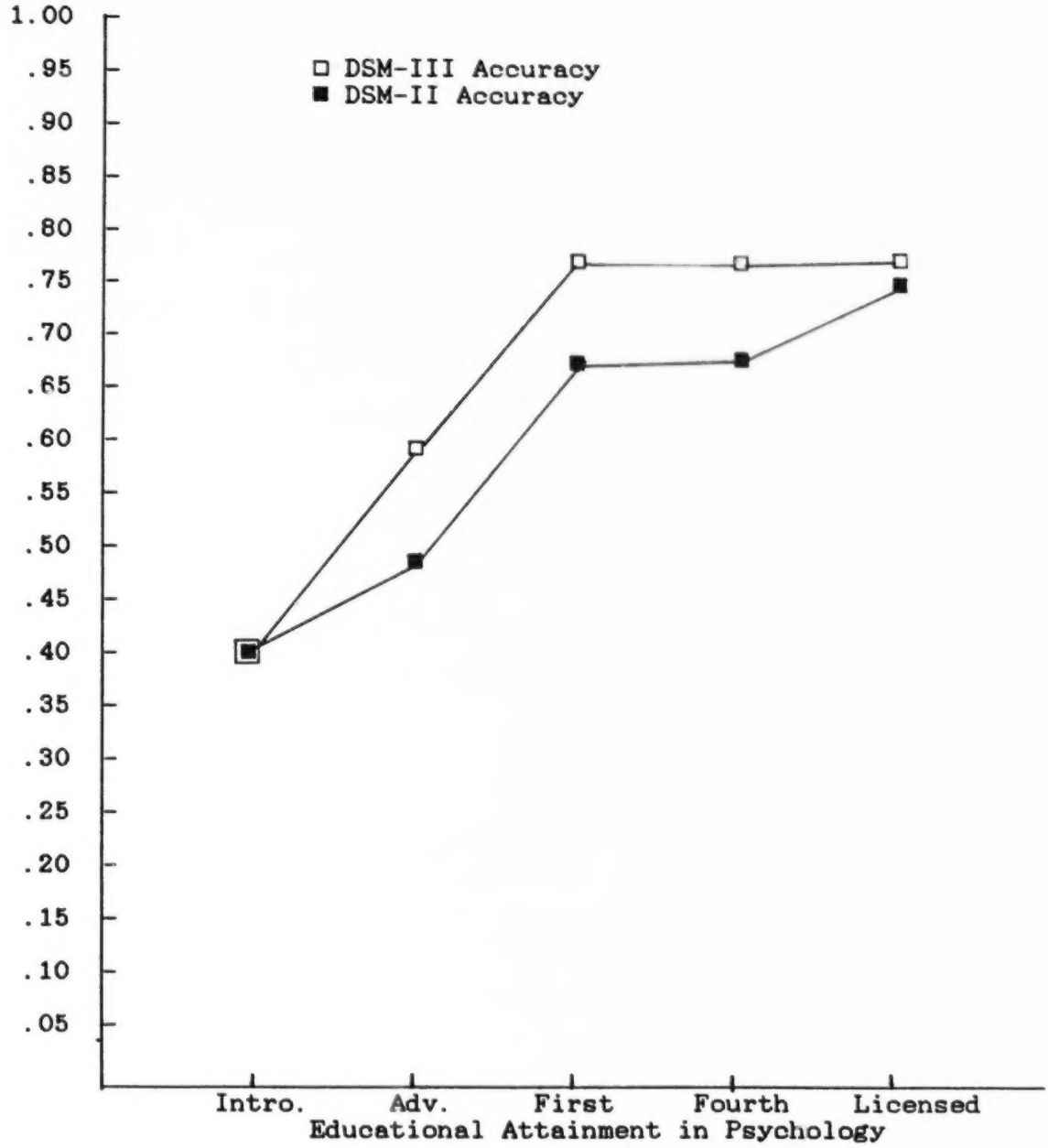
The videotapes used in this study were taken from two published training kits for DSM-III diagnosis (American Psychiatric Association, 1981; Webb, DiClemente, Johnstone, Sanders, & Perley, 1981). The DSM-III diagnoses were translated into the appropriate DSM-II diagnoses according to the procedures detailed in Appendix C of the DSM-III manual. These diagnoses were used as the DSM-II accuracy criteria in this study. Subjects were presented with multiple choice diagnostic alternatives and asked to select a DSM-II and DSM-III diagnostic term for each of the seven persons interviewed on the videotape. Subjects received a point for each correct DSM-II and DSM-III diagnosis.

Results

Accuracy

Educational Attainment

The results indicated a significant positive relationship between educational attainment in psychology and both DSM-II accuracy $t(173) = 10.24$, $p<.001$, and DSM-III accuracy $t(173) = 11.04$, $p<.001$ (see Figure 1). Educational attainment in psychology accounted for 34% of the variance of DSM-II accuracy scores and 35% of the variance of DSM-III accuracy scores. As



Intro. = Introductory undergraduate psychology students.
Adv. = Advanced undergraduate psychology students
First = First year psychology graduate students.
Fourth = Fourth year psychology graduate students.
Licensed = Licensed doctoral level psychologists.

Figure 1. Diagnostic accuracy as a function of educational attainment in psychology.

seen in Figure 1, the largest increases in DSM-II and DSM-III accuracy occurred between the introductory undergraduate and the first year graduate levels. Post hoc analyses indicated that first year graduate students exhibited DSM-II and DSM-III accuracy which was superior to advanced undergraduate students and introductory undergraduate students ($p<.05$, Tukey-B). Differences between first year graduate students, fourth year graduate students, and licensed psychologists were not significant. Each of these groups exhibited DSM-II and DSM-III accuracy which was superior to the two undergraduate groups ($p<.05$, Tukey-B).

Master's versus Doctoral

With respect to DSM-II accuracy, licensed doctoral level psychologists obtained significantly greater accuracy in identifying "manic depressive illness, manic" than unlicensed master's level psychologists $t(176) = 2.14$, $p<.05$. Only 59% of the master's level psychologists reported the correct diagnosis while 83% of licensed psychologists did so. The master's psychologists tended to mislable manic depressive illness as schizophrenia. Twenty-eight percent of master's psychologists incorrectly diagnosed this disorder as schizophrenia compared to 10% of licensed psychologists. Master's level psychologists did not differ significantly from doctoral level psychologists in the accuracy with which they identified the other DSM-II disorders. Doctoral level psychologists did not differ significantly from

master's level psychologists in DSM-III accuracy $t(173) = .772$, $p = .441$.

Reliability

Educational Attainment

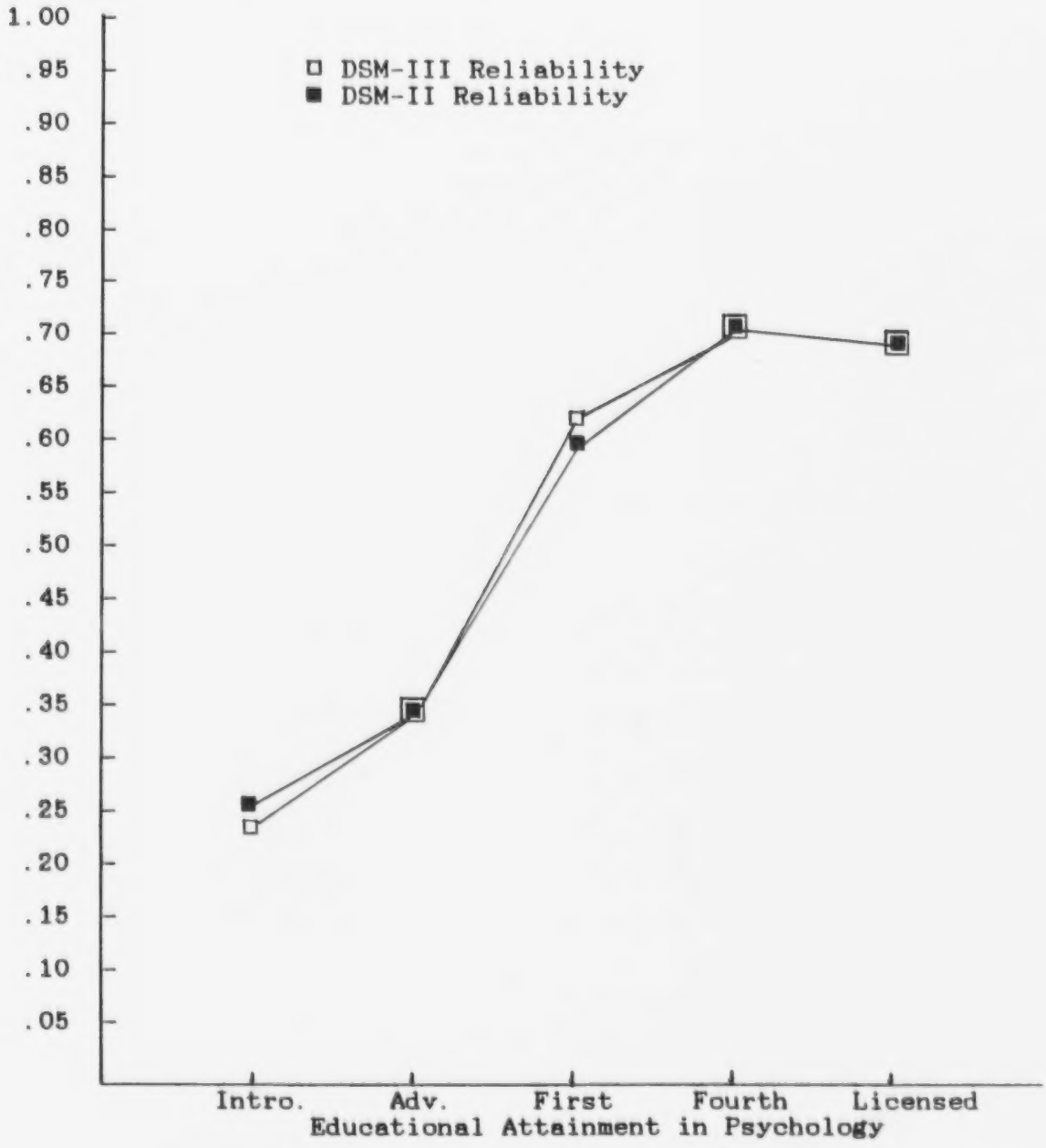
Figure 2 presents kappa interobserver reliability coefficients for DSM-II and DSM-III diagnosis as a function of educational attainment in psychology. The kappa coefficients were computed according to the procedures outlined in Fleiss (1981, pp. 229-231). These results parallel the accuracy results and indicate that interobserver reliability increases as a function of educational attainment in psychology.

Master's versus Doctoral

Licensed psychologist obtained a higher level of DSM-II and DSM-III reliability the master's level psychologists. On the DSM-II, licensed psychologists obtained a kappa coefficient of .69 while master's psychologists obtained a kappa coefficient of .58. On the DSM-III licensed pychologists obtained a kappa coefficient of .71 while master's psychologists obtained a kappa coefficient of .60.

Discussion

A large and significant proportune of the variance of DSM-II and DSM-III accuracy scores can be predicted from a knowledge of a person's level of educational attainment in psychology. These results support the validity of educational attainment in psychology as a predictor of a person's competence with the DSM-II and DSM-III.



Intro. = Introductory undergraduate psychology students.
Adv. = Advanced undergraduate psychology students
First = First year psychology graduate students.
Fourth = Fourth year psychology graduate students.
Licensed = Licensed doctoral level psychologists.

Figure 2. Kappa reliability as a function of educational attainment in psychology.

Graduate psychology students and doctoral level psychologists did not differ significaltly in their level diagnostic accuracy. This finding contradicts the finding of Hunt and Walker (1962) and Gardner and Harrison (1967) which indicate that graduate training in psychology is associated with diagnostic accuracy. One possible explanation for this discrepancy involves the nature of the present diagnostic task. It is possible that the present task lacked the difficulty necessary for measuring competence differences among persons at the highest levels of diagnostic training. Differences in competence among persons at the advanced levels of training could be assessed in subsequent studies by presenting subjects with more difficult diagnostic tasks. Tasks could be made more difficult by requiring subjects to select from a larger sample of diagnostic alternatives, by presenting subjects with a broader range of mental disorders, or by requiring subjects to demonstrate the interview skills necessary for diagnosis.

The above results provide validity evidence for one important licensing criteria, educational attainment in psychology. This result runs contrary to the position of Daniel Hogan and others who assert that psychology laws should be abolished because they are unrelated to the skills necessary for clinical practice. Validity evidence of the type included in this study could help to resolve many of the issues raised by critics of licensing laws and allow legislators to make informed

decisions regarding proposals to discontinue psychology licensing laws.

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